

REMARKS

Claims 14-48 are in the application.

Claim 14 has been allowed.

Claim 15 has been amended and new independent claim 32 has been added. Dependent claims 33-48 correspond to claims 16-31 as previously submitted, but are dependent on base claim 32.

The Examiner's courtesy and helpful suggestions at the personal interview held on February 27, 2002, are greatly appreciated.

Claims 15-31 stand rejected under 35 U.S.C. 103 as unpatentable over Mochizuki et al. At the interview, it was agreed that the present invention differs from Mochizuki et al. because the internal electrodes 10, 11 of the applicants' invention are only disposed on one major surface and on the side of the piezoelectric stack. More particularly, as shown in each of the embodiments illustrated in Figures 4-8 of the present application, each of the first and second electrode layers 10, 11 includes portions which are disposed only on the outer wall of the actuator body 1 and at points that are angularly offset from one another and each portion from each of the first and second electrode layers contacts the first and second electrode connection 12, 13.

Mochizuki et al., on the other hand, shows first and second electrode layers 2, 3 having portions 4, 5 which are alternately interspersed with one another about the circumference of the actuator. As a result, the active area of the piezoelectric stack of Mochizuki et al. is essentially restricted to the diameter of the electrode 3 shown in Figure 3B, which is substantially less than the diameter of the stack. In contrast, with the applicants' invention it is possible to extend the active area of the piezoelectric stack to the outer diameter of the stack less the small area of the recesses 17, 18. Claim 15 has been amended to emphasize this distinction.

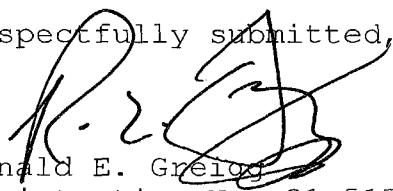
Claim 32 has been added as a further attempt to distinguish the applicants' invention from the structure taught by Mochizuki et al. As best seen from the copy of claim 32 in attached Appendix B, claim 32 is the same as previously submitted claim 15, with the additional limitation that the portions of the first and second electrode layers 10, 11 which are disposed on the outer cylinder wall of the actuator body 1 are not disposed on the opposite surface of the piezoelectric elements. This is clearly illustrated in each of the embodiments illustrated in Figures 3-8. Again, this is not taught or suggested by Mochizuki et al. which shows first and second electrode layers 2, 3 having portions

4, 5 which are alternately intersperse with one another about the circumference of the actuator.

Please charge any fees due for additional claims to deposit account No. 07-2100.

Entry of the amendment and allowance of the claims is respectfully submitted.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'R. E. Greigg', is written over the typed name and registration information.

Ronald E. Greigg
Registration No. 31,517
Attorney for Applicant
Customer Number 002119

April 29, 2002

Greigg & Greigg P.L.L.C.
1423 Powhatan Street
Unit One
Alexandria, Virginia 22314
Telephone: 703-838-5500
Facsimile: 703-838-5554

REG:JFG